IN THE CLAIMS

The following is a complete listing of the claims which replace any prior versions:

1. (Currently Amended) An assisted pole tip arrangement, comprising:

a pole tip; and

a magnetic bias field source disposed proximate to the pole tip for providing a magnetic bias field for enhancing magnetization switching of the pole tip;

wherein the magnetic bias field is generated by bias-current flowing perpendicularly to an air bearing surface through the magnetic bias source.

2. (Original) The assisted pole tip arrangement of claim 1 wherein the pole tip comprises a longitudinal axis, the magnetic bias field being oriented substantially transverse to the longitudinal axis of the pole tip.

3. (Original) The assisted pole tip arrangement of claim 1 wherein the magnetic bias field source is an external magnet.

4. (Original) The assisted pole tip arrangement of claim 1 wherein the magnetic bias field source is a magnet provided in-situ proximate the pole tip.

5. (Original) The assisted pole tip arrangement of claim 1 wherein the magnetic bias field source comprises a current path in-situ proximate to the pole tip, the current path being coupled to a write coil for using a write current to provide the magnetic bias field.

6. (Original) The assisted pole tip arrangement of claim 5 wherein the current path comprises a single path proximate to the pole tip, the single path providing a parallel path for write current to flow.

7. (Original) The assisted pole tip arrangement of claim 5 wherein the current path comprises a first leg and a second leg, the first leg extending across the pole and the second leg arranged proximate to the pole tip.

8. (Original) The assisted pole tip arrangement of claim 5 wherein the first and second leg are disposed between the write coil and a negative pole of the write coil.

9. (Original) The assisted pole tip arrangement of claim 1 wherein the magnetic bias field is transverse to an easy axis of magnetization for the pole tip.

10. (Original) The assisted pole tip arrangement of claim 1 wherein the magnetic bias field decreases an effective anisotropy-field opposing a driving-field and increases initial torque that the driving field has on the magnetization.

11. (Original) The assisted pole tip arrangement of claim 1 further comprising a lead coupled to the magnetic bias field source, the lead being formed with a thickness greater than a thickness of the magnetic bias field source to lower overall resistance.

12. (Canceled)

13. (Currently Amended) A magnetic head, comprising:

a first pole and a second pole, the first and second pole being separated to form a write gap at a pole tip;

a coil disposed between the first and second poles for producing at the write gap magnetic fields used to record data; and

a magnetic bias field source disposed proximate to the pole tip for providing a magnetic bias field for enhancing magnetization switching of the pole tip;

wherein the magnetic bias field is generated by bias-current flowing through the magnetic bias field source perpendicular to an air bearing surface.

14. (Original) The magnetic head of claim 13 wherein the pole tip comprises a longitudinal axis, the magnetic bias field being oriented substantially transverse to the longitudinal axis of the pole tip.

15. (Original) The magnetic head of claim 13 wherein the magnetic bias field source is an external magnet.

16. (Original) The magnetic head of claim 13 wherein the magnetic bias field source is a magnet provided in-situ proximate the pole tip.

17. (Original) The magnetic head of claim 13 wherein the magnetic bias field source comprises a current path in-situ proximate to the pole tip, the current path being coupled to a write coil for using a write current to provide the magnetic bias field.

18. (Original) The magnetic head of claim 17 wherein the current path comprises a single path proximate to the pole tip, the single path providing a parallel path for write current to flow.

19. (Original) The magnetic head of claim 17 wherein the current path comprises a first leg and a second leg, the first leg extending across the pole and the second leg arranged proximate to the pole tip.

20. (Original) The magnetic head of claim 17 wherein the first and second leg are disposed between the write coil and a negative pole of the write coil.

21. (Original) The magnetic head of claim 13 wherein the magnetic bias field is transverse to an easy axis of magnetization for the pole tip.

22. (Original) The magnetic head of claim 13 wherein the magnetic bias field decreases an effective anisotropy-field opposing a driving-field and increases initial torque that the driving field has on the magnetization.

23. (Original) The magnetic head of claim 13 further comprising a lead coupled to the magnetic bias field source, the lead being formed with a thickness greater than a thickness of the magnetic bias field source to lower overall resistance.

24. (Canceled)

25. (Currently Amended) A magnetic data storage system, comprising:

at least one magnetic storage medium;

a magnetic head, for reading data from and writing data to the at least one magnetic storage medium;

a media translater for moving the at least one magnetic storage medium relative to the transducer; and

a signal processing system, coupled to the media translater and to the magnetic head, for processing signals for the magnetic head and for controlling the media translater;

wherein the magnetic head further comprises:

a first pole and a second pole, the first and second pole being separated to form a write gap at a pole tip;

a coil disposed between the first and second poles for producing at the write gap magnetic fields used to record data; and

a magnetic bias field source disposed proximate to the pole tip for providing a magnetic bias field for enhancing magnetization switching of the pole tip;

wherein the magnetic bias field is generated by bias-current flowing perpendicularly to an air bearing surface through the magnetic bias field source.

26. (Original) The magnetic data storage system of claim 25 wherein the pole tip comprises a longitudinal axis, the magnetic bias field being oriented substantially transverse to the longitudinal axis of the pole tip.

27. (Original) The magnetic data storage system of claim 25 wherein the magnetic bias field is transverse to an easy axis of magnetization for the pole tip.

28. (Canceled)

29. (Currently Amended) An assisted pole tip arrangement, comprising:

means for providing magnetic fields for recording data on a magnetic recording medium; and

means, operatively coupled to the means for providing magnetic field for recording data on a magnetic recording medium, for providing a magnetic bias field for enhancing magnetization switching of the means for providing magnetic fields for recording data on a magnetic recording medium;

wherein the magnetic bias field is generated by bias-current flowing perpendicularly to an air bearing surface through the means for for providing a magnetic bias field.

30. (Currently Amended) A magnetic head, comprising:

means for providing a path for magnetic fields used to record data on a magnetic recording medium;

means, coupled to the means for providing a path, for producing the magnetic fields used to record data; and

means, coupled to the means for providing a path, for providing a magnetic bias field for enhancing magnetization switching of the means for providing a path for magnetic fields;

wherein the magnetic bias field is generated by bias-current flowing perpendicularly to an air bearing surface through the means for for providing a magnetic bias field.